

Attorney - Jacket No.: 08305-087002

**COMBINED DECLARATION AND POWER OF ATTORNEY**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled FRAME SHUTTER FOR CMOS APS, the specification of which:

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_ and was amended on \_\_\_\_\_.

☐ was described and claimed in PCT International Application No. \_\_\_\_\_ filed on \_\_\_\_\_ and as amended under PCT Article 19 on \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information I know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim the benefit under Title 35, United States Code, §119(e)(1) of any United States provisional application(s) listed below:

U.S. Serial No.	Filing Date	Status
60/243,899	October 26, 2000	Pending

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information I know to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. Serial No.	Filing Date	Status
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I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Country	Application No.	Filing Date	Priority Claimed
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I hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Scott C. Harris, Reg. No. 32,030  
 David L. Feigenbaum, Reg. No. 30,378  
 Hans R. Troesch, Reg. No. 36,950  
 Bing Ai, Reg. No. 43,312  
 John C. Phillips, Reg. No. 35,322  
 Frederick H. Rabin, Reg. No. 24,488  
 Joseph L. Stevenson, Reg. No. 43,163

William J. Egan, III, Reg. No. 28,411  
 James T. Hagler, Reg. No. 40,631  
 Samuel Borodach, Reg. No. 38,388  
 Kenyon S. Jenckes, Reg. No. 41,873  
 Richard J. Anderson, Reg. No. 36,732  
 Micheal P. Reed, Reg. No. 45,647  
 William E. Hunter, Reg. No. 47,671

**Combined Declaration and Power of Attorney**

Page 2 of 2 Pages

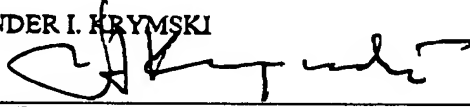
Address all telephone calls to SCOTT C. HARRIS at telephone number (858) 678-5070.

Address all correspondence to SCOTT C. HARRIS at:

FISH & RICHARDSON P.C.  
4350 La Jolla Village Drive, Suite 500  
San Diego, California 92122

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Full Name of Inventor: ALEXANDER I. KRYMSKI

Inventor's Signature: 

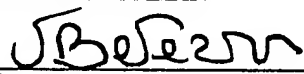
Date: 10-26-01

Residence Address: Montrose, CA

Citizenship: Russian

Post Office Address: 2255 Montrose Avenue, #15  
Montrose, CA 91020

Full Name of Inventor: VLADIMIR BEREZIN

Inventor's Signature: 

Date: 10-26-01

Residence Address: La Crescenta, CA

Citizenship: U.S.

Post Office Address: 3821 Los Olivos Lane  
La Crescenta, CA 91214



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/040,058	10/26/2001	Alexander I. Krymski	08305-087002

Dickstein Shapiro Morin & Oshinsky LLP  
 Attn: Thomas J. D'Amico  
 2101 L Street NW  
 Washington, DC 20037-1526

CONFIRMATION NO. 9431



\*OC000000011437424\*

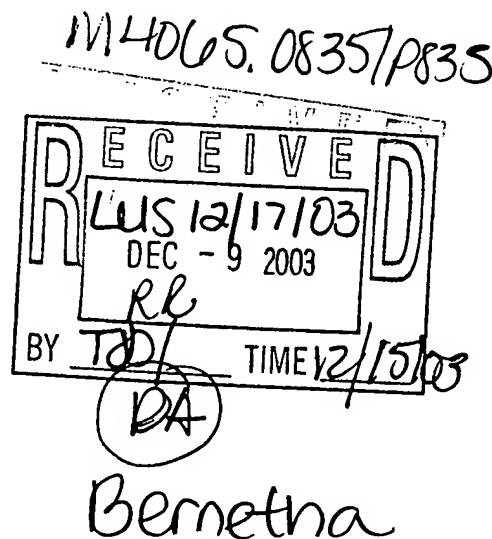
Date Mailed: 12/08/2003

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/01/2003.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

DEC 18 AM 8:55



PAULA S BRITTON  
 2800 (571) 272-1556

ATTORNEY/APPLICANT COPY

Application No.: 10/040,058

Docket No.: M4065.0835/P835  
PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Alexander Krymski, et al.

Application No.: 10/040,058

Group Art Unit: 2878

Filed: October 26, 2001

Examiner: Not Yet Assigned

For: FRAME SHUTTER FOR CMOS APS

**SUBMISSION OF REVOCATION OF POWER OF ATTORNEY AND NEW  
POWER OF ATTORNEY**

Commissioner for Patents  
Washington, DC 20231

Dear Sir:

Transmitted herewith is a Revocation of Power of Attorney and New Power of Attorney in relation to the above-captioned matter. Also attached is a copy of the related Assignments. In addition, effective immediately please change the Attorney Docket Number for all correspondence associated with this application to the Attorney Docket Number indicated above.

No fee is believed to be due in relation to this submission. The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which

Application No.: 10/040,058

Docket No.: M4065.0835/P835

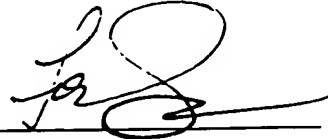
PATENT

should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under order number M4065.0835/P835.

Dated: May 1, 2003

Respectfully submitted,

By



Thomas J. D'Amico

Registration No.: 28,371

DICKSTEIN SHAPIRO MORIN &  
OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Alexander Krymski et al.

Application No.: 10/040,058

Group Art Unit: 2878

Filed: October 26, 2001

Examiner: Not Yet Assigned

For: FRAME SHUTTER FOR CMOS APS

REVOCATION OF POWER OF ATTORNEY  
AND NEW POWER OF ATTORNEY

Commissioner for Patents  
Washington, DC 20231

Dear Sir:

The undersigned, a duly authorized representative of Micron Technology, Inc. and current assignee of this application as demonstrated by the attached copy of the assignment, hereby revokes all Powers of Attorney previously given, and hereby appoints the following attorneys and/or agents to prosecute this application and transact all business in the U.S. Patent and Trademark Office connected herewith:

Gary M. Hoffman	26,411	Ryan H. Flax	48,141	Ellen S. Tao	43,383
Thomas J. D'Amico	28,371	Richard LaCava	41,135	Gary L. Veron	39,057
Donald A. Gregory	28,954	John C. Luce	34,378	Steven I. Weisburd	27,409
James W. Brady, Jr.	32,115	Peter McGee	35,947	Peter Zura	48,196
Jon D. Grossman	32,699	Edward A. Meilman	24,735	Jeremy A. Cubert	40,399
Mark J. Thronson	33,082			Gianni Minutoli	41,198
Eric Oliver	35,307	William E. Powell, III	39,803	Michael Bergman	42,318
Laurence E. Fisher	37,131	Steven S. Rubin	43,063	Salvatore P. Tamburo	45,153
Ian R. Blum	42,336	Michael J. Scheer	34,425	Peter A. Veytsman	45,920
Gabriela I. Coman	50,515	Stephen A. Soffen	31,063	Christopher S. Chow	46,493
Catherine A. Ferguson	40,877	Christopher M. Tanner	41,518		

Application No.: 10/040,058

Docket No.: M4065.0835/P835

All attorneys of the law firm Dickstein Shapiro Morin & Oshinsky LLP and also, listed as follows:

Charles B. Brantley, III	38,086	Kevin D. Martin	37,882	Russell Slifer	39,838
Michael L. Lynch	30,871	David J. Paul	34,692		

attorneys/agents of Micron Technology, Inc. as its attorneys with full power of substitution to prosecute this application and to transact all business in the Patent and Trademark Office in connection therewith.

Address all communications to:

Thomas J. D'Amico  
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP  
2101 L Street NW  
Washington, DC 20037-1526  
(202) 785-9700

For: Micron Technology, Inc.

  
\_\_\_\_\_  
Michael L. Lynch

Dated: 1-22-03

## ASSIGNMENT OF PATENTS

This ASSIGNMENT OF PATENTS (this "Assignment of Patents"), dated as of November 21, 2001, is entered into by and among Micron Technology, Inc., a Delaware corporation ("Buyer"), Photobit Corporation, a Delaware corporation ("Parent"; Parent is sometimes referred to herein as a "Seller") and Photobit Technology Corporation, a Delaware corporation and a wholly owned subsidiary of Seller ("Subsidiary"; Parent and Subsidiary are sometimes referred to herein as a "Seller" and sometimes collectively as the "Sellers").

This Assignment of Patents is entered into pursuant to Section 6.23 of the Asset Purchase Agreement dated as of November 21, 2001, (the "Asset Purchase Agreement;" capitalized terms used herein but not otherwise defined herein shall have the same meanings assigned to them in the Asset Purchase Agreement), by and among Parent, Subsidiary, Buyer, Dr. Sabrina Kemeny, Dr. Eric Fossum, Robert Panicacci and the Seller Representative.

Pursuant to the Asset Purchase Agreement, Sellers agreed, among other things, to transfer to Buyer all of Sellers' right, title and interest in and to the Acquired Assets, in exchange for the payment by Buyer of the Purchase Price and the assumption by Buyer of the Assumed Liabilities, in each case on the terms and subject to the conditions provided in the Asset Purchase Agreement.

1. Assignment of Patents by Sellers. Sellers hereby irrevocably and formally grant, bargain, sell, transfer, convey, assign and deliver to Buyer all right, title and interest in and to the patents, patent applications and provisional applications owned by each Seller throughout the world, together with any and all rights of such Seller associated with inventions claimed therein and/or with the applications and patents, whether or not such patents are registered with the United States Patent and Trademark Office or other comparable governmental authority of any foreign jurisdiction (including, without limitation, those patents and applications set forth on Exhibit A hereto) (the "Assigned Patents"), free and clear of all encumbrances, together with all causes of action and other rights to sue for and remedies against past, present and future infringements of any of the foregoing, together with the right to collect damages therefore, and rights of priority and protection of interests therein under the laws of any jurisdiction worldwide and all tangible embodiments thereof, to have and to hold the same unto Buyer, its successors and assigns, for and during the existence of such rights and all renewals thereof.

2. Further Assurances. Each Seller hereby covenants and agrees that from time to time and at the expense of such Seller and without further consideration, upon request of Buyer, each Seller shall and shall cause each of its affiliates to execute and deliver such instruments and documents, and take such further actions, as Buyer reasonably may request in order to sell, convey, transfer and assign to Buyer, or to record Buyer's interest in or title to, any of the Assigned Patents.

3. Power of Attorney. Each Seller hereby constitutes and appoints Buyer as such Seller's true and lawful attorney in fact, with full power of substitution in such Seller's name and



stead, to take any and all steps, including proceedings at law, in equity or otherwise, to execute, acknowledge and deliver any and all instruments and assurances necessary or expedient in order to vest or perfect the aforesaid rights and causes of action more effectively in Buyer or to protect the same or to enforce any claim or right of any kind with respect thereto. Each Seller hereby declares that the foregoing power is coupled with an interest and as such is irrevocable.

4. Successors and Assigns. This Assignment of Patents shall be enforceable against the successors and assigns of Sellers and shall inure to the benefit of the successors and assigns of Buyer.

5. Governing Law. This Assignment of Patents shall be governed by and construed in accordance with the laws of the United States, in respect to patent issues and in all other respects, including as to validity, interpretation and effect, by the internal laws of the State of California, without giving effect to the conflict of laws rules thereof.

IN WITNESS WHEREOF, this Assignment of Patents has been duly executed and delivered as of the date first written above.

MICRON TECHNOLOGY, INC.

By: W. B. Stover, Jr.

Printed Name: W. B. STOVER, JR.

Title: VICE PRESIDENT OF FINANCE AND C.F.C.

PHOTOBIT CORPORATION

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

PHOTOBIT TECHNOLOGY CORPORATION

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

IN WITNESS WHEREOF, this Assignment of Patents has been duly executed and delivered as of the date first written above.

**MICRON TECHNOLOGY, INC.**

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

**PHOTOBIT CORPORATION**

By: Sabrina Kemei

Printed Name: SABRINA KEMEI

Title: CEO

**PHOTOBIT TECHNOLOGY CORPORATION**

By: Sabrina Kemei

Printed Name: SABRINA KEMEI

Title: EXECUTIVE V.P.

**ACKNOWLEDGMENT - PHOTOBIT CORPORATION**

STATE OF CALIFORNIA                     )  
  ) SS:  
COUNTY OF SAN FRANCISCO            )

I, Teresa Solis, a Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY that Sabrina Kemeny, appeared before me this day in person, and acknowledged that she executed and delivered the Instrument of Assignment of Patents above as her free and voluntary act and in her representative capacity for Photobit Corporation, a Delaware corporation, acting in its representative capacity as the Chairman and CEO of Photobit Corporation., a Delaware corporation, for the uses and purposes herein set forth.

IN WITNESS WHEREOF, I have hereunto my hand and notarial seal this 21<sup>st</sup> day of November 2001.



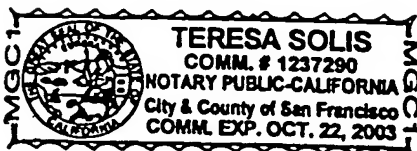
Teresa Solis  
Notary Public  
My Commission Expires: October 22, 2003

**ACKNOWLEDGMENT- PHOTOBIT TECHNOLOGY CORPORATION**

STATE OF CALIFORNIA                     )  
  ) SS:  
COUNTY OF SAN FRANCISCO            )

I, Teresa Solis, a Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY that Sabrina Kemeny, appeared before me this day in person, and acknowledged that she executed and delivered the Instrument of Assignment of Patents above as her free and voluntary act and in her representative capacity for Photobit Technology Corporation, a Delaware corporation, acting in their representative capacity as the Chairman and CEO of Photobit Technology Corporation, a Delaware corporation, for the uses and purposes herein set forth.

IN WITNESS WHEREOF, I have hereunto my hand and notarial seal this 21<sup>st</sup> day of November 2001.



Teresa Solis  
Notary Public  
My Commission Expires: October 22, 2003

## EXHIBIT A

### Photobit Patents Issued and Pending Applications.

	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
	<b>PATENTS ISSUED</b>		
1	Median Filter With Embedded Analog to Digital Converter	Patent #5,995,183	9601
2	Low-Voltage Common Source Switched-Capacitor Amplifier	Patent #6,049,247	9702
3	Quantum Efficiency Improvements in Active Pixel Sensors	Patent #6,005,619	9704
4	Bidirectional Follower for Driving a Capacitive Load	Patent #6,043,690	9719
5	Analog-to-Digital Conversion	Patent #6,087,970	9603
6	Low-Voltage Comparator with Wide Input Voltage Swing	Patent #6,147,519	9703
7	Programmable Analog Arithmetic Circuit for Imaging Sensor	Patent #6,166,367	9706
8	Correction of Missing Codes Nonlinearity in A to D Converters	Patent #6,255,970	9708
9	Charge-Domain Analog Readout for an Image Sensor	Patent #6,222,175	9712
10	A/D Converter Correction Scheme	Patent #6,191,714	9713
11	Active Pixel Sensor With Current Mode Readout	Patent #6,184,696	9714
12	Differential Non-Linearity Correction Scheme	Patent #6,215,428	9716
13	CMOS Image Sensor with Different Pixel Sizes for Different Colors	Patent #6,137,100	9718
14	Pulse-Controlled Light Emitting Diode Source	Patent #6,222,172	9801
15	CMOS Voltage Comparator Capable of Operating With Small Input Voltage Difference	Patent #6,184,721	9809
16	Using Single Lookup Table To Correct Differential Non-Linearity Errors In An Array Of A/D Converters	Patent #6,211,604	9813
17	Concentric Lens with Aspheric Correction	Patent #6,097,545	9816
18	Using Cascaded Gain Stages for High-Gain and High-Speed Readout of Pixel Sensor Data	Patent #6,229,134	9817
19	Lock-In Pinned Photodiode Photo-detector	Patent #6,239,456	9822
20	Ping-Pong Readout	Patent #6,204,792	9828
21	Nonlinear Flash Analog To Digital Converter Used In Active Pixel System	Patent #6,295,013	9818 9819
	<b>PHOTOBIT/GENTEX JOINTLY OWNED IP</b>		
1	Wide Dynamic Range Optical Sensor	Patent #6,008,486	
2	Vehicle Vision System	Patent Application Serial No. 09/001,855	
	<b>PATENT APPLICATIONS</b>		
1	Dead Pixel Correction by Row/Column Substitution	Patent Application Serial No. 09/031,145	9602
2	Color Interpolation	Patent Application Serial No. 09/028,961	9604
3	Double Comparison Successive Approximation Method and Apparatus	Patent Application Serial No. 09/360,294	9701
4	Digital Exposure Circuit For An Image Sensor	Patent Application Serial No. 09/298,306	9705
5	Method and Circuit for Fast and Accurate Adjustment of Integration Time for CMOS APS Cameras	Patent Application Serial No. 09/281,765	9707
6	Smart Column Controls for High Speed Multi-Resolution Sensors	Patent Application Serial No. 09/251,758	9709
7	Increasing Readout Speed in CMOS APS Sensors through Block Readout	Patent Application Serial No. 09/274,739	9710
8	Active Pixel Color Linear Sensor With Line-Packed Pixel Readout	Patent Application Serial No. 09/252,428	9711
9	Three Sided Butttable CMOS Image Chip	Patent Application Serial No. 09/211,718	9715

	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
10	Photodiode-Type Pixel For Global Electronic Shutter And Reduced Lag	Patent Application Serial No. 09/025,079	9717
11	Wide Dynamic Range Fusion Using External Memory Look-Up	Patent Application Serial No. 09/289,068	9720
12	Active Pixel Sensor With Mixed Analog and Digital Signal Integration	Patent Application Serial No. 09/183,369	9721
13	Look Ahead Shutter Pointer Allowing Real Time Exposure Control	Patent Application Serial No. 09/038,888	9802
14	Readout Circuit With Gain and Analog-to-Digital Conversion For Image Sensor	Patent Application Serial No. 09/264,501	9803
15	Using A Single Control Line To Provide Select And Reset Signals In Two Rows Of A Digital Imaging Device	Patent Application Serial No. 09/250,623	9804
16	High Resolution CMOS Circuit Using a Matched Impedance Output Transmission Line	Patent Application Serial No. 09/359,056	9806
17	Reducing Internal Bus Speed In a Bus System Without Reducing Readout Rate	Patent Application Serial No. 09/359,068	9807
18	RAM Line Storage for Fixed Pattern Noise Correction	Patent Application Serial No. 09/066,506	9808
19	Latched Row Logic for a Rolling Exposure Snap	Patent Application Serial No. 09/261,361	9810 9812
20	Analog To Digital Converter with Internal Data Storage	Patent Application Serial No. 09/281,358	9811
21	Low Light Sensor Signal to Noise Improvement	Patent Application Serial No. 09/358,065	9814
22	Nonlinear Flash Analog to Digital Converter Used In Active Pixel System	Patent Application Serial No. 09/161,355	9818 9819
23	Oversampled Centroid A to D Converter	Patent Application Serial No. 09/430,625	9820
24	Over Sampled CMOS Image Sensor	Patent Application Serial No. 09/429,776	9821
25	Pinned Floating Photoreceptor With Active Pixel Sensor	Patent Application Serial No. 09/397,381	9823
26	Oversampled CMOS Image Sensor	Patent Application Serial No. 09/430,734	9824
27	Optical Range Finder	Patent Application Serial No. 09/429,882	9825
28	Color Correction of Multiple Colors Using A Calibrated Technique	Patent Application Serial No. 09/209,882	9826
29	Micro Power Micro-Sized CMOS Active Pixel	Patent Application Serial No. 09/418,961	9827
30	ALow Power Signal Chain for Image Sensors CMOS APS	Patent Application Serial No. 09/590,785	9829
31	Matched Color CMOS Sensor	Patent Application Serial No. 09/267,503	9831
32	Clear Plastic Packaging in a CMOS Active Pixel Image	Patent Application Serial No. 09/442,871	9832
33	Semiconductor Imaging Sensor Array Devices With Dual-Port Digital Readout for CMOS Image Sensor	Patent Application Serial No. 09/448,184	9833
34	High-Speed Sampling Of Signals In Active Pixel Sensors	Patent Application Serial No. 09/527,422	9834
35	Multi-Chip Addressing For The I <sup>2</sup> C Bus	Patent Application Serial No. 09/458,720	9835
36	Circuits larger than the max. Reticle size in deep sub micron process	Patent Application Serial No. 09/523,127	9836
37	Compensation for Optical Distortion at Imaging Plane	Patent Application Serial No. 09/354,930	9837

	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
38	Contoured Surface of Image Plane Array Cover Plate	Patent Application Serial No. 09/470,264	9839
39	Backside Illumination of CMOS Image Sensor	Patent Application Serial No. 09/483,362	9901
40	A Technique For Flagging Oversaturated Pixels	Patent Application Serial No. 09/505,645	9902
41	Diagonalized Image Sensor Pixels For Improved Effective Performance	Patent Application Serial No. 09/507,565	9903
42	Active Pixel Sensor With Fully-Depleted Buried Photoreceptor	Patent Application Serial No. 09/516,433	9904
43	An Analog Solution for Oversaturated Pixel Problem	Patent Application Serial No. 09/522,287	9905
44	Superposed Multi-Junction Color APS	Patent Application Serial No. 09/522,286	9906
45	Multi Junction APS with Dual Simultaneous Integration	Patent Application Serial No. 09/519,930	9907
46	A Novel Idea for a New Readout Structure of APS	Patent Application Serial No. 09/595,592	9908 9909 9910
47	Increasing Pixel Conversion Gain In CMOS Image Sensors	Patent Application Serial No. 09/553,980	9912
48	Dual Sensitivity Image Sensor	Patent Application Serial No. 09/596,757	9915
49	Layout Technique For Semiconductor Processing Using Stitching	Patent Application Serial No. 09/687,266	9916 9917
50	Active Pixel Sensor with Reduced Fixed Pattern Noise	Patent Application Serial No. 09/550,816	9918
51	Low Voltage Analog-To-Digital Converters With Internal Reference Voltage and Offset	Patent Application Serial No. 09/538,043	9922
52	Techniques to Increase Signal Dynamic Range in CMOS APS	Patent Application Serial No. 09/653,527	9923
53	Low Power Analog-To-Digital Conversion	Patent Application Serial No. 09/528,310	9926
54	Calibration Circuit for Successive Approximation ADC.	Patent Application Serial No. 09/746,565	9927
55	P-Type Reset/Readout Circuitry for Radiation Hard APS	Patent Application Serial No. 09/648,403	9929
56	Novel Lenses Using Coherent Optical Fiber Bundles	Patent Application Serial No. 09/745,854	9931
57	Dynamic Histogram Equalization for High Dynamic Range Images	Patent Application Serial No. 09/776,151	9933
58	Compact Realization of 2-Reset Pointer Rolling Shutter in CMOS Sensor	Patent Application Serial No. 09/776,400	9935
59	Testing Of Solid-State Image Sensors	Patent Application Serial No. 09/692,742	9941
60	Adjustable Color-Plane-Pixel Integration Times for Asynchronous Pixel Saturation Avoidance	Patent Application Serial No. 09/761,868	9943
61	Improved Method for Flushed Reset	Patent Application Serial No. 09/858,748	9944
62	A New Frame-Shutter Pixel Structure with an Isolated Storage Node	Patent Application Serial No. 09/792,634	9945
63	Frame-Shuttering Scheme For Increased Frame Rate	Patent Application Serial No. 09/792,292	9946
64	Shared Photodetector Active Pixel	Patent Application Serial No. 09/661,639	9948
65	An Optimal Layout Technique for Row/Column Decoders to Reduce Number of Blocks	Patent Application Serial No. 09/860,031	9950
66	Microlenses With Spacing Elements To Increase An Effective Use of Substrate	Patent Application Serial No. 09/859,224	2004 2006
67	Pixel Optimization for Color	Patent Application Serial No. 09/922,607	2009

	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
68	Image Sensing System With Histogram Modification	Patent Application Serial No. 09/761,216	2012
69	Image Sensor Having Boosted Reset	Patent Application Serial No. 09/817,185	2014 2015
70	A High-Speed Analog-To-Digital Converter Using Multiple Staggered Successive Approximation Cells	Provisional Patent Application Serial No. 60/243,324	2016
71	White Spot Reduction For CMOS Imaging	Provisional Patent Application Serial No. 60/243,328	2017
72	New Architecture For High-Speed ADC Using Multiple Successive Approximation Cells	Provisional Patent Application Serial No. 60/253,430	2019
73	CMOS Sensor With Dual Column Parallel Analog-To-Digital Converters	Provisional Patent Application Serial No. 60/313,117	2020
74	Reference Voltage Circuit For Differential Analog-To-digital Converter (ADC)	Provisional Patent Application Serial No. 60/247,401	2021
75	Pseudo Random Assignment To Remove FPN Of High-Speed ADC Using Multiple Successive Approximation Cells	Provisional Patent Application Serial No. 60/306,753	2022
76	Frame-Scale Package	Provisional Patent Application Serial No. 60/245,085	2024
77	Black-Level Compensation With On-Chip successive Approximation ADC	Provisional Patent Application Serial No. 60/244,412	2025
78	An Improved Frame Shutter For CMOS APS	Provisional Patent Application Serial No. 60/243,899	2026
79	Wide Dynamic Range Operation For CMOS Sensor With Freeze-Frame Shutter	Provisional Patent Application Serial No. 60/243,898	2027
80	Freeze-Frame Shutter Imager With Increased Dynamic Range	Provisional Patent Application Serial No. 60/242,215	2028
81	Power Optimization For Class A Amplifier With Variable Signal Gain By matching Of Unity Gain Bandwidth To the Demanded Gain	Provisional Patent Application Serial No. 60/285,431	2029
82	Dynamic Range Extension In Color CMOS Active Pixel Sensors	Provisional Patent Application Serial No. 60/259,352	2030
83	Reducing Power Consumption And Noise In CMOS APS Sensor Through Block Read-Out	Patent Application Serial No. 09/901,280	2031
84	Reducing KTC Noise In 3T and 5T CMOS APS	Provisional Patent Application Serial No. 60/281,603	2102
85	Reference Voltage Stabilization In CMOS Sensors	Patent Application Filed 10/12/01 Serial No. pending	2109
86	Low Power Differential Charge Mode Readout Circuit, Pipelined Gain Stage, And Pipelined ADC For CMOS Active Pixel Sensors	Provisional Patent Application Serial No. 60/280,589	2110
87	A New Row Driver Circuit For CMOS APS Using Shared Row-Reset Pixels And Charge Pump Boosting Circuit	Patent Application Serial No. 09/876,848	2111
88	Temperature Sensor Using The Image Read-Out Signal Chain Of An Active Pixel Image Sensor Having Double Sampling Of A Pixel Reset Voltage And A Pixel Image Voltage Level	Provisional Patent Application Serial No. 60/306,718	2112
89	Method For Optimizing Microlens/CFA/Pixel Cooperative Performance In Image Sensors	Provisional Patent Application Serial No. 60/286,808	2113
90	On-Chip ADC Test for Image Sensors	Provisional Patent Application Serial No. 60/313,122	2115
91	Variable Pixel Clock Electronic Shutter Control Algorithm For Corruption-Free Image Stream During Pixel Speed Changes	Provisional Patent Application Serial No. 60/306,744	2118
92	An Architecture For Increased Dynamic Range In CMOS APS	Provisional Patent Application	2119



	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
		Serial No. 60/607,514	
93	Flexy-Power Amplifier. A New Amplifier With Built-In Power Management	Provisional Patent - Application Serial No. 60/307,513	2120

ASSIGNMENT

For valuable consideration, we, ALEXANDER I. KRYMSKI of Montrose, CA,  
VLADIMIR BEREZIN of La Crescenta, CA, hereby assign to Photobit Corporation, a Delaware  
corporation having a place of business at 135 North Los Robles Avenue, 7th Floor, Pasadena,  
California 91101; and its successors and assigns (collectively hereinafter called "the Assignee"),  
the entire right, title and interest throughout the world in the inventions and improvements which  
are subject of an application for United States Patent signed by us, entitled FRAME SHUTTER  
FOR CMOS APS, filed \_\_\_\_\_, and assigned U.S. Serial Number  
\_\_\_\_\_, and we authorize and request the attorneys appointed in said  
application to hereafter complete this assignment by inserting above the filing date and serial  
number of said application when known; this assignment including said application, any and all  
United States and foreign patents, utility models, and design registrations granted for any of said  
inventions or improvements, and the right to claim priority based on the filing date of said  
application under the International Convention for the Protection of Industrial Property, the  
Patent Cooperation Treaty, the European Patent Convention, and all other treaties of like  
purposes; and we authorize the Assignee to apply in all countries in our name or in its own name  
for patents, utility models, design registrations and like rights of exclusion and for inventors'  
certificates for said inventions and improvements; and we agree for ourselves and our respective  
heirs, legal representatives and assigns, without further compensation to perform such lawful acts  
and to sign such further applications, assignments, Preliminary Statements and other lawful  
documents as the Assignee may reasonably request to effectuate fully this assignment.

Date: 10.26.01  
ALEXANDER I. KRYMSKIDate: 10-26-01  
VLADIMIR BEREZIN